

Work Order ID 152619

Tuesday, November 01, 2016 1:35:00 PM

152619

Page 1

Item ID: D6101-017 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Saddle Billet
Start Date: 11/3/2016 Start Qty: 20.00 ***20*** Cust Item ID:
Required Date: 11/17/2016 Req'd Qty: 20.00 ***20*** Customer:
Reference:

Approvals: Process Plan: **DAS 21** Date: **NOV 01 2016** Tooling: Date: Run Start ***NR1***
QC: **9-89** Date: SPC (Y/N): Date: Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D6101	B								
100	PURCHASING	0.00							DAS 13 9-89
100									
Purchasing	Memo	0.00							
Purchasing	Issue P/O: 34163								
	a) Description: Alluminum billet								
	b) 6.350" x 6.250" x 2.250" thick (+0.030 / -0.000)								
	c) Tolerance on all dimensions are +0.030"/-0.000"								
	d) Grain direction along 6.350" length								
	e) Material: 7075-T7351 (QQ-A-250/12)								
	f) Material certification required								
110	Receive & Inspect for Damage & Mat'l Certs	0.00							
110									
Packaging	Memo	0.07							
Packaging	Ensure material certification is attached								

20 **NOV 03 2016****20x sp/6-11-21**

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">Skid-tube ☐</td> <td style="width: 15%;">Cross tube ☐</td> <td style="width: 15%;">Water Jet ☐</td> <td style="width: 15%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																							
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Page 2

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Start Date: 11/3/2016 Start Qty: 20.00 ***20*** Cust Item ID:
Required Date: 11/17/2016 Req'd Qty: 20.00 ***20*** Customer:
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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC6- Inspect dimensions to drawing	0.00							DAS 14 9-89
120						20	0		11/1/22
QC	Memo	0.00							
Quality Control	Ensure Material certification comply to Dwg D6101								
130	Identify as per dwg & Stock Location: MAT 44	0.00							DAS 44 9-89
130						20	0		11/1/22
Packaging	Memo	0.03							
Packaging	LOCATION: MAT046								
140	QC21- Final Inspection - Work Order Release	0.00							DAS 21 9-89
140									NOV 23 2016
QC	Memo	0.33							
Quality Control									

DAS
21
9-89

NOV 23 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐		OTHER : ☐					

Picklist Print

Tuesday, November 01, 2016 1:35:04 PM

Page 1

Work Order ID: 152619

152619

Parent Item: D6101-017

D6101-017

Parent Item Name: Saddle Billet

Start Date: 11/3/2016

Required Date: 11/17/2016

Start Qty: 20.00

Required Qty: 20.00

Comments: IPP RevA: New issue DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6101-017P		Purchased	No			110	Each	0.0000	1	20			
D6101-017P									**				
ALUM BILLET													

20x sp/6-11-21

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

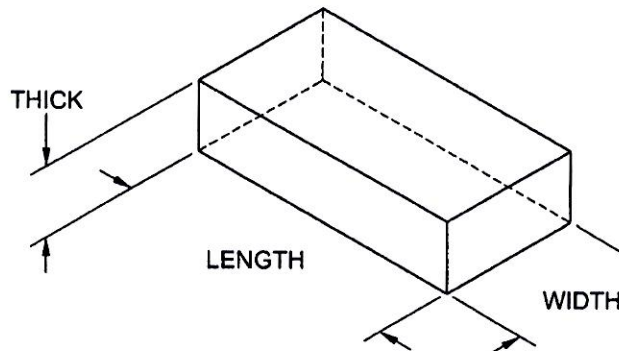
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Description Work Order Deviation				Disposition																					

Root Cause				FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐		
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐		
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐		
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Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐		
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____					
Misidentified ☐	Past Due ☐						

SPECIFICATION CONTROL DRAWING



SHOP COPY
 RETURN TO
 ENGINEERING
 UNCONTROLLED COPY
 SUBJECT TO AMENDMENT
 WITHOUT NOTICE
 WORK ORDER
 NO. 152619 MJS
 1611-01

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, LENGTH x WIDTH x THICK (+0.030/-0.000), AND GRAIN DIRECTION AS SHOWN.

TOLERANCES ON ALL DIMENSIONS ARE +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES.

B ACCEPTABLE SPECIFICATIONS FOR 7075-T7351 ALUMINUM ARE AMS-QQ-A-250/12, QQ-A-250/12, OR ASTM B209

Part No.	Alloy	Length	Width	Thick	Grain Direction
D6101-001	7075-T7351 (QQ-A-250/12)	6.000	6.250	2.000	Along 6.000 Length
D6101-003	7075-T7351 (QQ-A-250/12)	7.875	6.250	2.000	Along 7.875 Length
D6101-005	7075-T7351 (QQ-A-250/12)	5.000	8.250	2.500	Along 5.000 Length
D6101-007	7075-T7351 (QQ-A-250/12)	7.750	8.250	2.500	Along 7.750 Length
D6101-009	7075-T7351 (QQ-A-250/12)	8.700	8.250	2.500	Along 8.700 Length
D6101-011	7075-T7351 (QQ-A-250/12)	9.700	8.250	2.500	Along 9.700 Length
D6101-013	7075-T7351 (QQ-A-250/12)	10.100	8.250	2.500	Along 10.10 Length
D6101-015	7075-T7351 (QQ-A-250/12)	9.450	6.250	2.500	Along 9.450 Length
D6101-017	7075-T7351 (QQ-A-250/12)	6.350	6.250	2.250	Along 6.350 Length

RELEASED
 09/07/15/WP

B	ADDED D6101-015/-017, ADD ASTM B209	RF	09.04.23
A	NEW ISSUE	CP	01.03.30
REV.	DESCRIPTION	BY	DATE
DESIGN	CP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED		DRAWING NO. REV. B	
MFG. APPR.		D6101 SHEET 1 OF 1	
APPROVED		TITLE SCALE	
DE APPR.		SADDLE BILLET, 7075 NTS	
DATE		09.04.23	
COPYRIGHT © 2001 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.			



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO34163

Purchase Order Date 11/3/2016

PO Print Date 11/3/2016

Page Number 1 of 3

Order From :

METAUX CASTLE
P.O. BOX 4090 STN A
TORONTO, ONTARIO M5W OE9
CANADA

VU-MET002

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

E-MAILED

NOV 03 2016

Contact Name

Vendor Phone

Ship To Contact

Ship To Phone

Ship Via: Yours ppd

Ship Acct:

Buyer

Customer POID

Customer Tax #

Terms

Currency

FOB

Chantal Lavoie

10127-2607

Net 30

USD

Destination-Collect

Line Nbr	Reference Vendor Part Number Line Comments Delivery Comments	Description/ Mfg ID	Req Date/ Taxable Promise Date	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
1	D6101-015P	ALUM BILLET	11/16/2016 Yes 11/16/2016		10.00 Each	\$52.00	\$520.00
AS PER DWG D6101 REV. B B152618 size: 9.450" X 6.250" X 2.50" thick Tolerance on all dimensions are +0.030"/-0.000" Grain direction along 9.450" length Material: 7075-T7351 (QQ-A-250/12)							
Line Total:							\$520.00
2	D6101-017P	ALUM BILLET ✓	11/16/2016 Yes 11/16/2016		20.00 Each	\$32.15	\$643.00
AS PER DWG D6101 REV. B B152619 SIZE: 6.350" X 6.250" X 2.250" THICK GRAIN DIRECTION ALONG 6.350" LENGTH MATERIAL: 7075-T7351 QQ-A-250/12 TOLERANCE AS PER QUOTE +.030"/-.000"							

8/16-11-21

Note:

11/3/2016

**Castle Metals®**

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 1 of 2

Shipment No:3131072

Ship From: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped	F.O.B.	Freight Terms		Carrier		BOL No	
18-NOV-16	ORIGIN	Prepaid		MANITOU LIN		3131072-2	

Shipment Details			Final Destination Branch - TOR				
Order No	Line No	Item No	Description				
4556094	2	750704.MO	2.2500.PL.7075.T7351.ALUMINUM.USI.48.5000.144.5000 CUT 2SIDED TO 6.25 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 6.35")) X 6.35 IN (+ .0310/- .0000 IN (GRAIN TO RUN ALONG 6.35")) - ALUMINUM PLATE SAW SPECIFICATIONS: AMS-QQ-A-250/12				
Purchase Order No		Part Number	Ordered Qty		Invoice Qty		
34163		YOUR ITEM NUMBER: D6101-011	20.00 PCS		20.00 PCS		
Details		ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS					
Delivery No.	Mill	Heat Number	Mech Id	PCS	Width (IN)	Length (IN)	Shipped Qty(LBS)
120660253	KAISER ALUMINUM			20			183.9074

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned.

These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to US law prohibited.

Date Printed: 18-NOV-2016 03:47:38 PM



Castle Metals®

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 2 of 2

for credit.	
Reviewed by Authorized Castle Metals Representative:	Date: Name:

Chris Galt

NOV 18 2016



SP16-11-21

SHIP TO:

A M CASTLE & CO
3050 SOUTH HYDRAULIC
WICHITA, KS 67216

KAISER ALUMINUM

Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4431600

SOLD TO:

AM CASTLE & CO- SOLD TO
1420 KENSINGTON RD
SUITE 220
OAK BROOK, IL 60523

CUSTOMER PO NUMBER: 371314-1	WORK PACKAGE:	CUSTOMER PART NUMBER: 750704	SHIP RUN/LOAD: 103673/1	GOV'T CONTRACT NUMBER:
KAISER ORDER NO: 1209425-1	SHIP DATE: 3-SEP-2016	ALLOY: 7076	CLAD: BARE	TEMPER: T7351
WEIGHT SHIPPED: 3206 LB	QUANTITY: 2 PCS EST.	TRUCK B/L #: 2082235	GAGE: 2.2500 IN (57.1500 MM)	PRODUCT DESCRIPTION: KaiserSelect Plate
			DIAMETER/WIDTH: 48.500 IN (1231.9 MM)	LENGTH: 144.500 IN (3670.3 MM)

MHU 2009509: LOT 788489A3 2 pieces;

Certified Specifications

AMS 4078/RevJ
ASTM B 209/Rev14
BSS 7055/RevB
DPS 4.713/RevAK
GSS18100/RevG/Amd1

AMS-00-A-250/12/RevA
ASTM B 594/Rev13
CMMP 025/RevV
EAC MS1011/RevE
MMS 159/RevT

AMS-STD-2154/RevA
BAC 5439/RevJ
CSTI 006/RevE
GAMPS 9101/RevB/AmdSCN1
PS 21211/RevP

DAS
14
9-85

16/11/22

Test Code: 4297

Lot: 788489A3

Cast 215

Drop 10

Test Results

Ingot 2

Parent Lot: 179897B4

Melted in USA

(ASTM E8/B557)

(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	70.8 : 71.2 (488 : 491)	59.2 : 60.2 (408 : 415)	10.8 : 11.5

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS:	40.7 Min	40.8 Max
(MS/M):	23.6 Min	23.7 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual(wt%)	0.07	0.15	1.5	0.02	2.5	0.20	5.8	0.03	0.01	0.01	TOT 0.05



KAISER ALUMINUM

Trentwood Works - Spokane, WA 99215
Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number
4431600

ALLOY LIMITS

	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER	MAX
7075												
MIN(wt%)	0.00	0.00	1.2	0.00	2.1	0.18	5.1	0.00	0.00	0.00	EACH	0.05
MAX(wt%)	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	0.05	0.05	TOT	0.15

Aluminum Remainder

ORDER COMMENTS

AMC CA-15413B R 6

TEST NOTES

Metal represented by this test report was 100t Type I
(immersion) ultrasonically tested from one side with 3mm
dead zones top and bottom and meets the Class A and Class B
requirements of all specifications referenced on this test
report. No surface marking of sonic indications is
performed.

CERTIFICATION

Kaiser Aluminum, Trentwood Works, is ISO 9001, AS9100, and ISO 14001 certified, and hereby certifies that all material shipped under this order:
* has been inspected, tested, and found to be in conformance with the requirements of the specifications indicated herein.
All test equipment and measuring devices are calibrated and certified in accordance applicable specifications. For material thicknesses outside specification limits, mechanical properties are as shown herein and chemical composition meets specification requirements. Reported elongation values have been measured as elongation at fracture.
* was melted in the United States of America or a qualifying country per DFARS 225.872-1(a), was manufactured in the United States of America, and meets the requirements of DFARS 252.225 for domestic content.
* has been thermally processed in compliance with AMS 2772, where applicable.
* is mercury free, within the limits of detection of ASTM E1215 (< 1ppm).
* is in compliance with RoHS 2, European Union Directive 2011/65/EU.
* is in compliance with European Chemical Agency, ECHA, REACH regulations, (EC) No 1907/2006, and Kaiser regularly monitors these regulations for updates.
* is free of Conflict Minerals, as defined in Section 15.2 of the Dodd-Frank Act.
* is free of weld repair.
* meets the reporting requirements of EN10204, Type 3.1.
Any warranty is limited to that shown on Kaiser Aluminum's standard general terms and conditions of sale. Test reports are on file, subject to examination. Test reports shall not be reproduced except in full, without the written approval of the Kaiser Aluminum laboratory. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

James Hemmenway

JAMES HEMENWAY, TECHNICAL PROCESS MANAGER



MATERIAL RECEIPT INSPECTION FORM

MATERIAL: DL6101-017
 DATE: 11/6/11/22

PO / BATCH NO.: 34163/152619

MATERIAL CERT REC'D: yes
 QUANTITY RECEIVED: 20
 QUANTITY INSPECTED: 20
 QUANTITY REJECTED: _____

THICKNESS ORDERED: 2.250
 THICKNESS RECEIVED: 2.230
 SHEET SIZE ORDERED: _____
 SHEET SIZE RECEIVED: _____

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y ☒ N	
CORRECT FINISH	☒ Y ☐ N	
CORROSION	Y ☒ N	
CORRECT GRAIN DIRECTION	☒ Y ☐ N	
CORRECT MATERIAL	☒ Y ☐ N	7075-T7351
CORRECT THICKNESS	☒ Y ☐ N	2.230
PHOTO REQUIRED	Y ☒ N	
CORRECT MATERIAL	☒ Y ☐ N	AL5 00-A-250/12
CORRECT REF # TO LINK CERT	☒ Y ☐ N	HEAT # 78848943
CORRECT MATERIAL IDENTIFICATION	☒ Y ☐ N	DL6101-017
CORRECT M# ON THE MATERIAL	☒ Y ☐ N	B152619
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y ☒ N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y ☒ N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
TYPE OF MATERIAL SIZE OF TEST SAMPLE HARDNESS / DUROMETER READING	HRC	HRB	DUR A	DUR D	

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS 14 9-89</u> DATE: <u>11/6/11/22</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in